Remarks

The Office Action and the references cited therein have been carefully reviewed. The following remarks herein are considered to be responsive thereto. Claims 2 and 12 remain in this application. Claims 2 and 12 are presently amended by this amendment.

Rejections as to Form

The Examiner rejected Claims 2 and 12 under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention.

In particular, the Examiner maintained a previous rejection with regard to Claims 2 and 12 as cited in the Office Action mailed August 26, 2003. The Examiner states in the rejection that the preambles of Claims 2 and 12 recite a method for analyzing the structure of a target array while the bodies of the claims recite steps for changing a variable that is included in the target array. Claims 2 and 12 were determined to be vague and indefinite because it was unclear whether the target array of Claims 2 and 12 was a microarray, a data structure or the data representing the elements of the array apparatus.

In response, Applicant has amended the preambles and the bodies of Claims 2 and 12 to reflect that the claims are directed to the structure and elemental data for <u>a method for analyzing the data structure of a target array consisting of a plurality of different elements</u>.

Further, the Examiner issued a rejection specifically to Claim 2, wherein the language "replacing in the first/second array..." and "replacing...into information" was found to be vague and indefinite.

In response, Applicant has amended Claim 2 in order to clarify the phrases replacing a variable in the first array that corresponds to a variable that is included in the target array into information and replacing a variable in the second array that is included in the target array with information.

Applicant respectfully requests the withdrawal of the rejection of Claims 2 and 12.

Rejections as to Substance

The Examiner rejected Claims 2 and 12 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,369,577 issued to Kadashevich, et al. (Kadashevich).

The patent to Kadashevich teaches an apparatus that searches a collection of words that are based upon the input of a word to initiate the search. Kadashevich further teaches that the apparatus comprises a means for generating a first set of words; wherein the first set of words contains member words that are lexically related to the input word. Also disclosed is a search engine that searches a collection of words in order to detect the occurrence of any of the words from a group of search words, the group of search words includes the input word and the first set of words.

The Examiner cites Kadashevich for teaching "a method of making and using a morphological (structure) analyzer of a first and second set of words (array of different elements (column 2, lines 12 to column 3, line 21). The text is organized within an array (column 8, lines 19-31), as in instant claim 2, steps (a) and (b)." However, the present invention as claimed is directed to a method for analyzing the data structure of a target array. The target array consists of a plurality of different elements, wherein a first and

second array are generated having elements corresponding to the target array. Kadashevich teaches that "a collection of words is searched based upon an input word" (col. 1, lines 54-56) and not an array that consists of a plurality of different elements, as claimed in the present application.

Further, the Examiner states Kadashevich "parses the text and traverses said text to identify matching letters (complement) for each character in the input word (first array) against a sequence (second array). This aspect of Kadashevich does not teach any aspect of the presently claimed invention. The present invention comprises three arrays: a target array, a first generated array that has elements that correspond to the target array and a second generated array that has elements that correspond to the target element. Each of the generated first and second arrays are generated in respect to the target array and not to each other.

This aspect of the present invention differs from Kadashevich, where it is taught that in response to an input word a first set of words is generated that contains members that are lexically related to the input word (col. 1, lines 56-58). Further, Kadashevich teaches that a second group of words is generated from a "second group of words from selected members of the group of synonyms," said group of synonyms being generated within the first set of lexically related words (col. 2, lines 34-42). Therefore, Kadashevich teaches that the input word is utilized to generate a grouping of words, wherein the first grouping of words subsequently is utilized to generate a second grouping of words (col. 1, lines 54-68, col. 2, lines 1-42).

Kadashevich is further cited for teaching "the analyzer traverses the lexicon tree (predetermined direction), checking all possible interpretations of each character in the

G:\Ibm\105\14043\amend\14043.am4.doc

input string. If the end of the input string is reached (location) at the same point that the end of a stem or suffix is reached, then the input word has been successfully parsed. Nowhere in Kadashevich is it taught that lexicon tree is traversed in a predetermined direction, further, as presently cited Kadashevich does not teach traversing a target array and replacing in the first array a corresponding variable that is included in the target array into information that represents a **location** of the same variable if it is present upstream with respect to said variable when the target array is traversed along a path extending in a predetermined direction. Neither does Kadashevich teach traversing a target array replacing a variable in the second array that is included in the target array to information that represents a **location** of said variable with respect to a different complementary variable present upstream with respect to said variable when the target array is traversed along a path extending in a predetermined direction.

The Examiner further states, "the method of Kadashevich comprises steps for analyzing a structure of a array as directed to the current word (first array) and another word (second array)." The Applicant contends that the Examiner's observations as indicated in the Office Action showcase the distinction between the presently claimed invention that comprises a first and second array that are generated having elements that correspond to a target array and the teachings of Kadashevich.

Kadashevich does not teach each and every limitation of the presently claimed invention, therefore, it is respectfully submitted that Claims 2 and 12 are allowable for at least the given reasons. Consequently, the Examiner is respectfully requested to withdraw the rejection of claims 2 and 12 under 35 U.S.C. §102(b).

In regard to the rejection of Claims 2 and 12 pursuant to 35 U.S.C. § 103(a), the Applicant respectfully submits that the Jensen-Eisen combination is defective in that it fails to teach or suggest <u>a method for analyzing the data structure of a target array</u>, as particularly recited in the foregoing independent Claims 2 and 12.

The Applicant respectfully submits that the primary prior art reference to Jensen has no relevance to the method recited in Claims 2 and 12. More specifically, where as the claimed method is for analyzing the structure of a target array (using first and second generated arrays), Jensen's method is just for finding patterns in an array (not analyzing the structure of its array). Jensen's method cannot be extended for analyzing the structure of a target array (i.e. mRNA or DNA sequences). That is, Jensen fails to teach or suggest the step of traversing the target array and replacing in the first array a corresponding variable using the location of the <u>same variable</u> along a path extending in a predetermined direction, as particularly recited in Claims 2 and 12. Jensen is completely deficient in this regard.

In contrast, Jensen teaches finding patterns in its array that comprises a list of patterns. Further, Jensen fails to teach or suggest the step of traversing the target array and replacing in the second array a corresponding variable using the location of the <u>complementary variable</u> along a path extending in a predetermined direction, as particularly recited in Claims 2 and 12. Instead, as mentioned above, Jensen teaches finding patterns in its array that comprises a list of patterns. Contrary to Jensen, the present method analyzes the data structure of the target array by using the first and second arrays, which include the structural information for the target array (i.e. a mRNA or DNA sequence).

The Applicant respectfully submits that the secondary prior art reference to Eisen does not rectify the above-identified deficiencies in Jensen. That is, Eisen likewise has no relevance to the method recited in Claims 2 and 12. More specifically, whereas the claimed method is directed to analyzing the structure of a target array (using first and second generated arrays), Eisen is directed to analyzing an image of a DNA microarray (See Eisen, page 4). The Applicant respectfully submits that the two terms of art are competently distinct. An array, which includes elements or variables (e.g., characters), is completely distinct from a microarray, which is an apparatus that includes spots (See Eisen page 4, third full paragraph).

The processing of a spots in the microarray apparatus is completely different from the above-described analysis of the structure of the array having elements or variables. As abovementioned, an array is a computer science term of art representing a set of elements in an ordered sequence (e.g., characters in a string array). Thus, Eisen cannot be applied to the claimed invention because the problem Eisen solves is totally disparate from the claimed invention. Unlike Eisen, which analyzes an image of a DNA microarray, the present invention analyzes DNA or RNA sequences as arrays of elements (e.g., arrays of "ATCG..." and "AUCG..."). Consequently, the Jensen-Eisen combination does not teach or suggest a method of analyzing the target array, as particularly recited in the independent Claims 2 and 12.

In view of the foregoing, the Applicant respectfully requests the Examiner to withdraw the rejection of the independent Claims 2 and 12 pursuant to 35 U.S.C. § 103(a).

G:\Ibm\105\14043\amend\14043.am4.doc

In view of the above, it is respectfully submitted that this application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicant's attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned.

Respectfully submitted,

Steven Fischman
Registration No. 34,594

SCULLY, SCOTT, MURPHY & PRESSER
400 Garden City Plaza
Garden City, New York 11530
(516) 742-4343
SF:WAP:jf

14